WHAT IS CLAIMED IS:

1. A method for cultivation of filamentous fungi comprising the steps of:

(a) preparing a medium comprising a suspended nutritionally solid substrate; and

(b) inoculating an inoculum into said medium comprising said nutritionally solid substrate in a bioreactor to carry out fermentation.

2. The method as claimed in claim 1, wherein said filamentous fungi comprise *Monascus*, *Penicillium* or *Aspergillus*.

3. The method as claimed in claim 1, wherein said nutritionally solid substrate is a carbohydrate.

4. The method as claimed in claim 3, wherein said carbohydrate is grain.

5. The method as claimed in claim 4, further comprising the steps of husking, cocking and sterilizing said grain before adding to said medium.

6. The method as claimed in claim 1, wherein said medium in step (a) further comprises a nitrogen source, inorganic salts and trace elements.

7. The method as claimed in claim 1, further comprising a step of inoculating said filamentous fungi after step (a) to obtain said inoculum, and then inoculating said inoculum

into said medium comprising said nutritionally solid substrate in a bioreactor to carry out fermentation.

8. The method as claimed in claim 7, wherein the step of inoculating said filamentous fungi comprises:

(1) inoculating said filamentous fungi from a stock culture to a new agar plate and incubating in an incubator for 5 ~ 7 days;

(2) washing spores and mycelia grown on said plate with sterile water;

(3) cultivating said spores/mycelia in a medium comprising a nutritionally solid substrate by shaking; and

(4) inoculating a culture cultivated for 36 ~ 48 hours at step (3) into a bioreactor.

9. The method as claimed in claim 8, wherein said bioreactor is a pneumatic bioreactor.

10. The method as claimed in claim 9, wherein said pneumatic bioreactor is an air-lift bioreactor with a net draft tube.

11. The method as claimed in claim 1, further comprising cultivating said filamentous fungi using the fed-batch process.

12. The method as claimed in claim 11, wherein the medium of the batch comprises a nitrogen source and a nutritionally solid substrate.

13. A method for cultivation of *Monascus* species by using a suspended grain substrate comprising the steps of:

(a) preparing a medium comprising a suspended grain substrate; and

(b) inoculating an inoculum into said medium comprising said grain substrate in a bioreactor to carry out fermentation.

14. The method as claimed in claim 13, further comprising the steps of husking, cocking and sterilizing said grain before adding to said medium.

15. The method as claimed in claim 13, further comprising a step of inoculating said *Monascus* species after step (a) to obtain said inoculum, and then inoculating said inoculum into said medium comprising said nutritionally solid substrate in a bioreactor to carry out fermentation.

16. The method as claimed in claim 15, wherein the step of inoculating said *Monascus* species comprises:

(1) inoculating said *Monascus* species from a stock culture to a new agar plate and incubating in an incubator for 5 ~ 7 days;

(2) washing spores and mycelia grown on said plate with sterile water;

(3) cultivating said spores/mycelia in a medium comprising a grain substrate by shaking; and

(4) inoculating a culture cultivated for 36 ~ 48 hours at step (3) into a bioreactor.

17. The method as claimed in claim 16, wherein said bioreactor is a pneumatic bioreactor.

18. The method as claimed in claim 17, wherein said pneumatic bioreactor is an air-lift bioreactor with a net draft tube.

19. The method as claimed in claim 13, further comprising cultivating said *Monascus* species using the fed-batch process.

20. The method as claimed in claim 19, wherein the medium of the batch comprises a nitrogen source and a grain substrate.

21. A method for producing metabolites from the cultivation of *Monascus* species by using a suspended grain substrate comprising the steps of:

(a) preparing a medium comprising a suspended grain substrate; and

(b) inoculating an inoculum into said medium comprising said grain substrate in a bioreactor to carry out fermentation.

22. The method as claimed in claim 21, further comprising the steps of husking, cocking and sterilizing said grain before adding to said medium.

23. The method as claimed in claim 21, further comprising a step of inoculating said *Monascus* species after

step (a) to obtain said inoculum, and then inoculating said inoculum into said medium comprising said nutritionally solid substrate in a bioreactor to carry out fermentation.

24. The method as claimed in claim 23, wherein the step of inoculating said *Monascus* species comprises:

(1) inoculating said *Monascus* species from a stock culture to a new agar plate and incubating in an incubator for 5 ~ 7 days;

(2) washing spores and mycelia grown on said plate with sterile water;

(3) cultivating said spores/mycelia in a medium comprising a grain substrate by shaking; and

(4) inoculating a culture cultivated for 36 ~ 48 hours at step (3) into a bioreactor.

25. The method as claimed in claim 24, wherein said bioreactor is a pneumatic bioreactor.

26. The method as claimed in claim 25, wherein said pneumatic bioreactor is an air-lift bioreactor with a net draft tube.

27. The method as claimed in claim 20, further comprising cultivating said *Monascus* species using the fed-batch process.

28. The method as claimed in claim 27, wherein the medium of the batch comprises a nitrogen source and a grain substrate.